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A Case Study of Human Resources in Peasant Paddy Farming in Kelantan

by

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Introduction

Since double-cropping started about 10 years ago in some parts of Kelantan, the major problem which exists at present is why farmers in the established double-cropping area still have a low level of productivity. In this paper I shall discuss this problem from the aspect of human resources as one of the vital factors of farm management. The data is based on the results of research¹⁾ on paddy farm management which I conducted in May, 1973 at the Kampong Hutan Chengal in Kelantan, in order to clarify the mechanism of production and management of Malay peasants through a case study on off-season cropping, April to October, 1973.

I Outline of the Subject Community²⁾

The subject community, Kampong Hutan Chengal, is situated in Pasir Mas District, Kelantan State, in the northeastern part of Peninsular Malaysia. Pasir Mas District forms the border between Malaysia and Thailand, situated on the left side delta of the Kelantan river which flows into the South China Sea through the state. The population of Pasir Mas District was 89,971 and the total number of households 20,735 in 1968. The size of the district is 93,506.7 acres which is categorized according to land use pattern as follows: paddy field, 51,836.2 acres; rubber holding, 28,263.5 acres; and others, 13,407.0 acres.

Pasir Mas District is administratively divided into 5 sub-districts (Daerah), and the

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- 1) This survey was conducted as part of a study for the degree of Master of Agricultural Science, for the University of Malaya. The survey was made from April 1973 to March 1974, and the data used in this paper was obtained by the first interview in May 1973. I wish to extend my thanks to the Department of Agriculture of the State Government of Kelantan and the Faculty of Agriculture, University of Malaya. Dr. Tan Bock Thiam, my supervisor, and Mr. Nik Hassani bin Mohammad, an agricultural officer of Kelantan State, read my draft and gave me valuable comments. Also, I am grateful to Dr. Yoshihiro Tsubouchi, Kyoto University, who gave me valuable assistance with this paper.
- 2) The Center for Southeast Asian Studies of Kyoto University, Japan, conducted a community survey at a certain community in Pasir Mas which is located about 14 miles away from this community. Because the Center published reports of the research, some of which mentioned Pasir Mas District itself, I refer readers to these papers. See, for example Tsubouchi, Y. "Socio-Economic Changes in a Malay Village Caused by Tobacco Cultivation," *Southeast Asian Studies*, Vol. 9, No. 4, Kyoto, March 1972.

Kampong Hutan Chengal belongs to Daerah Kubang Supat which had a population of 7,360 and a total number of households of 1,539 in 1968. The Daerah Kubang Supat has an area of 4,921.4 acres which is utilized as follows: paddy field, 2,340.7 acres; rubber holding, 502.0 acres; and others, 2,078.7 acres.

The Kampong Hutan Chengal is located about one mile north of Tendong which is almost mid-way between Pasir Mas and Kota Bharu, the capital of the state. Although the community is composed of 73 households, this study is concerned with only 55 households which cultivated off-season paddy in 1973.

There are 4 completed irrigation and drainage schemes in Pasir Mas District. The Daerah Kubang Supat is included in the Pasir Mas Scheme. Most of the paddy field, 2,340.7 acres in Kubang Supat is used for double-cropping under irrigation. The Farmers' Association and the Department of Agriculture are providing guidance concerning paddy farming. This area is one of the most progressive paddy farming areas in the district.

II Human resources: Quantity of labour supply

The human resources of peasant farming are to be discussed in terms of quantity as well as quality. In this section, I consider the quantitative aspect.

The total population of the 55 households concerned here is 322, and the average family size 5.9. In general, the family size of Malay peasants is not very large, perhaps because they stand on the principle of the nuclear family. A common pattern of labour supply in farming is one centering around a couple and children, who join their parents after finishing school. The total number of potential labourers who can be engaged in full-time paddy farming is 164,³⁾ which leads to 3 potential labourers per household on the average (Table 1). The total cultivated acreage is 133.91 acres, and therefore, the man/land ratio is 1.2, which is much larger than the corresponding figure of 0.51 in Kedah State, which is the largest paddy growing area in Malaysia.⁴⁾

Table 1 Potential family members engaged in full-time farming

female	male	0	1	2	3	4	5	total
1		1	25	5	2	0	1	34
2		0	7	7	2	1	0	17
3		0	1	2	1	0	0	4
total		1	33	14	5	1	1	55

3) A potential family farm labourer refers to one who is over 13 years of age and who has finished his schooling, staying at home without an off-farm job. Family members who are sick or too old to work are excluded. Female labour is dealt with in the same way as male labour. This concept does not necessarily mean family members who are working in the field in actual fact. In almost every household, there are some who are not working at all.

4) Reproduced from the data presented in "Combined Farm Management Studies in the Muda Area Pilot Projects", Department of Agriculture, Kedah, Feb. 1970.

The number of households calculated by cultivated paddy field acreage and by potential family labour is shown in Table 2. I am concerned only with paddy field acreage because rubber holding, orchard and vegetable gardens are owned and cultivated only by a few farmers, and such an area is small in absolute terms. The average acreage of cultivated paddy field is only 1.83 acres per household.⁵⁾ In relation to this minute acreage of paddy field, the potential family labour is not fully utilized. Generally, only the head of the household works in the field, and the wife helps her husband only in the busy season, e.g. in transplanting and harvesting. This is the most common pattern of labour in the community.

Table 2 Number of households calculated by cultivated paddy field acreage and by potential full-time labourers

acreage						
No. of labourers		$a \leq 1$	$1 < a \leq 2$	$2 < a \leq 3$	$3 < a \leq 4.5$	total
1		0	1	0	0	1
2		8	15	2	0	25
3		4	2	6	0	12
4		2	6	2	0	10
5		0	3	0	1	4
6		1	0	2	0	3
total		15	27	12	1	55

Although usually all of the farming processes tend to be carried out only by family labour, it is in the transplanting and harvesting seasons that we find hired labour in the field. Ploughing also is sometimes carried out by hired labour, i.e. hired tractor and buffalo.

Gotong-royong, which means originally exchange labour, can be found mainly in transplanting. In this community, *Gotong-royong* sometimes refers to cooperative work. That is, clearing work of irrigation and drainage canals and trapping rats are done in cooperation with all farmers concerned under the leadership of the *penghulu*⁶⁾ and the Farmers' Association representative for the unit.

The necessary quantity of labour for production of paddy is closely inter-related with the technological system of production and management. Mechanization of paddy farming causes production to require a smaller quantity of labour per unit. This refers particularly to ploughing and raking. In this community, tractor ploughing was introduced a few years ago but other processes still depend completely upon man-and-animal power in the traditional form. Buffalo or cattle ploughing is still carried out at the same time as tractor ploughing. The necessary quantity of labour for paddy farming in general tends to decline as the management is modernized or rationalized. On the other hand, there is no possibility to reclaim land

5) Average paddy cultivation in the whole of West Malaysia is approximately 3.1 acres. See: Ministry of Agriculture, "Paddy Farming in West Malaysia," p. vi, March 1972.

6) The *penghulu* is the headman of the community. In Kelantan, the *penghulu* is administratively in charge of a few communities. Occasionally, he acts as a leader even in agricultural work, like in the subject community.

near the community, thus it is difficult to expand farm size. It may be said that the farmers will meet more difficulty concerning their potential labour force as time passes, so long as they continue to depend mainly upon rice production, which will be gradually rationalized or mechanized.

Then, what about off-farm job opportunities for the community? There are 9 full-time off-farm workers in the 55 households. Of this number, 7 male workers and 2 female workers, two are employed as government clerks, three as teachers at primary school and four are engaged in the private sector, including own business (Table 3).

Table 3 Number of full-time off-farm labourers calculated by age group and by type of job

age group type of job	15-19	20-29	30-39	40-49	50-59	60 above	total
Govt. clerk	0	2	0	0	0	0	2
teacher	1	1	0	1	0	0	3
private sector	1	1	1	0	0	1	4
total	2	4	1	1	0	1	9

III Human Resources: Quality of labour force

The quality of the labour force is one of the most important factors in the effectiveness of farm management. The quality of the labour force particularly refers to the ability of the farmer as a manager of his farming business as well as general labour force. This ability of the farm manager is considered as a fundamental factor which influences totally the system of business and production, and especially plays a crucial role in transforming the farming system. In the preceding section I stated that the necessary quantity of labour for production of rice tended to decline as the farming system was modernized or rationalized. It follows from this general description and the expectation of rural modernization that we must discover a higher potential in the quality of the labour force which will play an important role in the transformation. Mellor⁷⁾ states that agricultural development may entail large additional labour inputs. Although he does not refer to improvement of rice production but to general agricultural development, needless to say, it is most desirable that additional labour inputs have a higher potential to enhance development. If we are unable to find the potential, we must reconsider the value of modernization, and especially of mechanization, which will create a surplus labour force in the rural area. It is necessary to ascertain the most comprehensive and practical method of modernization of paddy farming, as well as agricultural development itself.

In this section, I will clarify the quality of the labour force through analysis of the educa-

7) Mellor, J. W. "The Use and Productivity of Farm Family Labour in Early Stages of Agricultural Development," *Journal of Farm Economics*, Vol. 45, No. 3, Aug., 1963.

tion standard of farmers, farming experience and their reactions to the Department of Agriculture and the Farmers' Association, both of which are carrying out positive modernization policies.

1. Education standard of farmers

Since education provides farmers with basic knowledge and method of thinking, it is necessary to discuss this first. In this sub-section, I shall particularly emphasize illiteracy.

The average age of 55 heads of households is 45.5 years. Most of them were born and brought up in a rural community, and the average number of years during which they have been engaged in paddy farming is as long as 22.6 years, living mainly on inherited land and also on purchased and rented land.

Thirty nine of the total 55 heads have not been educated at school.⁸⁾ Table 4 shows the schooling of the farmers by age group and by period. It is clear from the table That younger farmers are rather better educated than older farmers. This may be due to the expansion of primary education carried out by the Government of Malaysia after independence. As an exception, in the age group of 40's, there is one farmer who was educated for 12 years at school, and who is the headman of the community and working as a leader of the farmers not only in name but in fact.

Table 4 Schooling of farmers by age group and by period.

years	age group	15-19	20-29	30-39	40-49	50-59	60 above	total
	0	0	0	6	15	9	9	39
	1-3	0	0	0	3	1*	0	4
	4-6	0	2	3	3	0	0	8
	7-9	1	1	1	0	0	0	3
	10 above	0	0	0	1	0	0	1
	total	1	3	10	22	10	9	55

* Completely illiterate.

Three of the 39 who have not been educated at school have studied at the *pondok*.⁹⁾ Although these 3 farmers are unable to write and read Roman letters (Rumi), they can read and write modified Arabic characters (Jawi), thus they are included in the category of literacy. One farmer who had learned at school for 3 years studied again at the *pondok* for one year after finishing his schooling. Further, one farmer is self-educated so that he is literate in Jawi. One, of the 16 who were educated at school, was in school only for one year and

8) One household head is a teacher who was educated for 6 years at school, but because he does not take charge in farming, I deal with his wife as a head here since she is actually in charge of farming. She is illiterate.

9) Small informal school conducted by Islamic teachers. Students study mainly Islam and religious language through the Koran. One of them had studied for 10 years and the other for 3 years. Further discussion appears in the following paper: Tsubouchi, Y., "A *Pondok* School in Kelantan, Malaysia," *Southeast Asian Studies*, Vol. 11, No. 2, Kyoto, Sep., 1973.

because he could not read and write at all, even in Jawi, he is included in the group of illiteracy. Although there is one farmer who can write only his name, he is included in illiteracy here. Therefore, farmers literate either in Jawi or in Rumi or in both are only 19 out of the total 55. Accordingly, the rate of illiteracy is as high as 65.5%.¹⁰⁾

Two, of the 39 who have not been educated at school, had attended short-term adult education courses which were organized by the Government. However, they are still illiterate. It may be considered that the farmers who are literate, even though they have not been educated at school, studied through the Koran, just like the farmers who studied at the *pondok*.

Likewise, the rate of illiteracy of the farmers is quite high, and, as will be stated later, this will be an obstacle to the transformation of peasant farming. The method of guidance formed by the Department of Agriculture and the Farmers' Association is restricted and therefore we can not expect much result. From the view point of farmers, therefore, illiteracy considerably limits both method of information and its sources, both of which are important for transforming the present system of production and management.

2. Farmers' Association

The Governmental organization which executes policies regarding agricultural modernization at the lowest or farm level is the Farmers' Association (F.A.). Since agricultural policies face difficulties at farm level, this F.A. must play a most important role in the transformation of peasant farming. A previous study revealed that returns to extension activities were higher in less modernized areas, while schooling had higher returns in areas of more modernized agriculture.¹¹⁾ In the present situation of rural Malaysia, particularly of Kelantan, this F.A. can be considered as representative of extension activities. Thus, the examination of the farmers' reaction to the F.A. is a very important aspect of the study of human resources.

First, it is necessary to describe briefly the functions of the F.A. The association has business sections of extension, credit, marketing and accounting. A farmer who wants to join the F.A. must buy at least one capital share which costs M\$5, because the association operates on the share-holding system. A member of the F.A. can enjoy the right to obtain fertilizer and agricultural chemicals on credit, as well as being able to borrow money up to M\$1,000. He can also purchase a bicycle and water-pump on loan. The credit and loan systems are extended only to members, but all other facilities are open to all farmers.

The Farmers' Association which takes charge in the subject community is called the Kubang Supat Farmers' Association and has an office in Tendong, about one mile from the

10) The corresponding figure for the whole of Malaya, above 15 years of age, was 53% in 1957, which is, even though obsolete, the most recent data available. The illiteracy rate for males alone was 34%. In age group of 40's, the rates of illiteracy were 61% and 69% for all races and for Malays, respectively. "Population Census," 1957, Department of Statistics, Federation of Malaya.

11) Patrick, G. F. and Kehrberg, E. W., "Costs and Returns of Education in Five Agricultural Areas in Eastern Brasil," *American Journal of Agricultural Economics*, Vol. 55, No. 2, May, 1973.

community. It may be considered that the F.A. can influence considerably the farmers in the community rather than those in other communities located further away from the office. The Kubang Supat Farmers' Association was established in June, 1968. Although there were only 151 members and 171 capital shares held by members at the time of its establishment, the number of members and capital shares held have rapidly increased to 1,517 and 1,894, respectively, by the end of 1972. Eight staff members including three labourers are working in this office. However, each staff member is involved in specialized administrative duties and has little time to spare for the more time-consuming work of extension and guidance.

Forty, of the total 55, are members of the association. They hold 70 capital shares in total, and thus the average number of the shares held is 1.75 per member. This, even if small in absolute terms, is larger than the average number of the whole Kubang Supat Farmers' Association of 1.25 shares per member.

Concerning the functions of the association, all members in the community stated that it was profitable and significant because it helped farmers to improve their technical level and management system. They particularly appreciated the credit system of the association. With this as an incentive, 17 of the 40 members have joined. Even if they did not specify but answered simply that it provided some facilities regarding farming, 16 of the 40 perhaps were referring to this credit system as their incentive for joining (see Table 5). Farmers, who have in general little or no saving, appreciate such aid functions of the association, being anxious about accident or natural disaster.

The members of the F.A. in the community were asked their opinions on how the F.A. should be improved to give benefit to the farmers. The result is shown in Table 6. Fifteen of the 40 had no idea. Main opinions are as follows: 1) The F.A. should increase its capital stock; 2) the F. A. should support higher prices for rice;¹²⁾ and 3) the F. A. should sell fertilizer more cheaply.¹³⁾ It is natural that the farmers are sensitive to the price of rice as well as fertilizer. It should be noted that only a few farmers mentioned that the F.A. should expand extension works, and that all members should follow the F.A.'s guidance. Most of the farmers are attracted by credit or material facilities of the association rather than the aspects of advanced technology and improved knowledge which can really improve the

Table 5 Reasons why farmers joined the F. A.

To get good facilities	16
To get credit	17
To improve farming	7
To be friend of members	3
Just following others	4

Note: Some farmers answered more than two. Members interviewed were 40.

Table 6 The F. A. members' opinions on how the F.A. should be improved to give benefit to farmers.

1. Should increase its capital stock	8
2. Should support higher price of rice	7
3. Should sell fertilizer more cheaply	8
4. Should expand extension work	2
5. Should promote mechanization	4
6. All farmers should become members	1
7. Should increase maximum amount of fertilizer which members can get on credit*	1
8. All members should follow the F. A.'s guidance	1
9. No idea	15

* Presently a member can get 3 bags of fertilizer per capital share held.

Note: Farmers were allowed to answer more than two.

Members interviewed were 40.

quality of human resources. This is perhaps because 1) of farmers' economic situation under which they want to borrow money not only for farming but also for daily consumption, and they want the F.A. to mechanize further so as to operate more cheaply tractor ploughing and rice milling, and 2) most farmers, as will be discussed in detail later, are rather satisfied with their present standard of technology and farm management.

As mentioned earlier, 15 farmers of the total 55 are not members of the F.A. They were asked why they had not yet joined the association. The result is shown in Table 7. Eight of the 15 non-members stated they were unable to raise enough money to purchase the capital share. There are two farmers¹⁴⁾ who had applied to join before, but who could not get in because of some mistakes in admission procedure, and they are still non-members. Further, two have emotional animosity against the association, even though they appreciate it. Formerly, there was a cooperative association in the community, which was established and had been conducted by volunteer farmers.

Table 7 Reasons why farmers have not yet joined the F. A.

Shortage of capital	8
Missed registering before	2
Emotionally against	2
No appreciation	2
Newly settled down	1
total	15

- 12) Price of rice supported by the Government was M\$16 per pikul at the time of interview. The F. A. purchases rice at the supported price. One pikul \doteq 62 kg.
- 13) The F. A. sells fertilizer at the same price as ordinary shops. In a case of credit, 8.5% interest is charged for one cropping season.
- 14) There was actually one more farmer who belonged to this category. Since he finally joined the association at the 4th attempt during the interview time, he is dealt with as a member in this paper.

Most of the members of the cooperative association transferred to the Farmers' Association in 1968 when it was newly established by the Government. The above two farmers were leading members of the cooperative association. There are two other farmers who do not appreciate the F.A. at all. They strongly dislike the admission procedure as well as the share-holding system. According to them, further crucial reasons are as follows: 1) The F.A. does not pay any dividend;¹⁵⁾ 2) they can borrow money from friends, if necessary. These two farmers want the association only to pay dividend and are not willing to appreciate its other functions¹⁶⁾ because they are able to manage themselves without any facilities provided by the F.A. However, it may be said that these points made by the above two farmers are valid, because unless there occurs a serious disaster which cannot be solved satisfactorily among farmers or friends, there is actually not much difference between members and non-members of the association in daily matters. The remaining one farmer had settled down in this community a few years ago and he has not yet joined.

Thirteen of the 15 non-members answered that they were willing to join the association, if possible. The remaining two farmers are still emotionally against the F.A.

Since joining the association is considered as one of the methods of realization of farmers' consciousness to improve their farming system and technology under the given conditions, we must turn to examine the background of 8 farmers who have not yet joined the F.A. because of shortage of capital. It is most unlikely that the farmers are unable to raise only 5 dollars for admission.

Firstly, these 8 farmers are classified according to their tenancy status and acreage of cultivated paddy field. Table 8 shows the number of the total sample by tenancy and by membership of the association. The rate of non-membership is lowest among the owner farmers, and, as expected, it is highest among the tenant farmers. The 8 farmers in question are 4 tenant farmers, 3 owner-tenant farmers and one owner farmer. Thus, 100% of non-member tenants mentioned shortage of capital as their reason for not joining the association, while 37.5% and 33.3% of the non-member owner-tenant farmers and owner farmers, respectively, have the same reason. Seven of the 8 farmers are either completely or partly tenant farmers under share-cropping tenancy which brings half of the total yield to the land-

Table 8 Number of farmers calculated by tenancy and by membership of the F. A.

	F. A. members	F. A. non-members	total
owner farmer	20(86.9)	3(13.1)	23(100.0%)
owner-tenant	18(69.3)	8(30.7)	26(100.0%)
tenant farmer	2(33.3)	4(66.6)	6(100.0%)
	40(72.8)	15(27.2)	55(100.0%)

15) The association actually pays dividend, but not many farmers claim it. The dividend is 50 cents annually per share.

16) It was impressive that one farmer who was a member of the F. A. calmly criticized this point.

lord. This is reinforced by the Table 9 which shows that in the case of the tenants even rather large farmers have not yet joined the F.A. for the above reason.

Secondly, the off-farm job opportunities of those 8 farmers are considered. Twelve farmers or 30% of the total 40 members and 7 farmers or 47% of the total 15 non-members are engaged in off-farm jobs. Obviously, the rate of farmers who are engaged in off-farm jobs are much higher among the non-member farmers rather than the member farmers. Of the 8 farmers in question, 4 are black smiths, one is an owner farmer cultivating 1.5 acres, 2 and one of the 3 other smiths are owner-tenant farmers and a tenant farmer, respectively. The four remaining farmers are not involved in off-farm jobs.

Table 9 Number of farmers who are not members of the F. A. because of shortage of capital calculated by land ownership and by cultivated paddy field acreage.

acreage					
ownership	$0 < a \leq 0.5$	$0.5 < a \leq 1$	$1 < a \leq 1.5$	$1.5 < a \leq 2$	total
owner farmer	0	0	1	0	1
owner-tenant	0	2	0	1	3
tenant farmer	0	1	1	2	4
total	0	3	2	3	8

From the above analysis, as the background to the farmers who have not yet joined the association because of shortage of capital, we may conclude as follows. There is a tendency for the tenant farmers to have rather conservative attitudes towards improvement of the farming system and technology. Accordingly, some of them are still non-members of the F.A. This is, perhaps, because the tenant farmer can obtain only 50% of the total increment of yield caused by improved farming under share-cropping tenancy. Also, perhaps, because of minute-sized farms, they are unable to expect much result in increase of yield. In addition, there are some cases in which the off-farm job prevents farmers from being fully engaged in rice production, consequently some farmers are led to be rather conservative in their attitude to transforming the system and technology of the farming.

3. Demonstration of improved farming techniques

In this sub-section, the farmers' reaction to the demonstrations conducted by the Department of Agriculture in the form of film show and talks for the past several years through the F.A. is discussed in detail. It is possible for such demonstration to play an important role in the transformation of peasant agriculture as one of the methods of disseminating improved techniques under given conditions.

Forty-four farmers or 80% of the total sample have attended the demonstration, while 11 farmers did not do so. The more important reason for not attending the demonstration is lack of interest, because of which 8 farmers or 14.5% of the total farmers did not attend. The other reason is that they did not know the demonstration was conducted, 3 farmers or

5.5% of the total belonging to this category.¹⁷⁾ However, it is doubtful that farmers in such a small community would not know about the demonstration which had been planned some-time ago. If they had known, they might be transferred to the category of lack of interest.

How often farmers have attended the film shows is shown in Table 10. Although 20% of the total sample have never attended, 43% of the total have done quite often, more than 7 times, and almost each film show. From these figures, we can observe there is a great variation among farmers even in the same community in their attitude towards demonstration or extension activities, at least to this film show. It is clear from the table 10 that as farm size increases, farmers' reaction to the demonstration becomes more positive. The difference of age does not cause any variation in farmers' attitude. Also, we can observe a slight tendency for tenancy preventing the farmers from attending the demonstration often.

Table 10 Attendance of farmers to the film show

times attended	O.	O.T.	T.	total No.	%	average ac./farm	average age of farmers
0	3	4	4	11	20.0	1.51	45.5
1-3	9	2	0	11	20.0	1.68	46.4
4-6	2	8	1	11	20.0	1.60	50.0
7 above	9	12	1	22	40.0	2.18	42.7
total	23	26	6	55	100.0%	1.83	45.5

Note: O. = owner farmer, O.T. = owner-tenant, T. = tenant farmer.

All farmers who have attended, appreciate the demonstration, because the film show is much clearer to understand than talks or illustration. However, remember that 20% of the total did not attend it. As background, it is considered as follows: 1) Although the film shows provide easier understanding to farmers who may even be illiterate, they have fundamental difficulties in technical level and financial situation with the improvement of the farming system; and 2) some farmers are not very positive in further transformation of the farming system after double-cropping by which they are considerably satisfied. Many of the farmers who attended, complained that they could not follow entirely the recommendation because of financial reason.

4. Farmers' opinions on the present way of farming

Generally speaking, progress or improvement is made as a result of dissatisfaction with the current situation. Progress in agriculture also is no exception. Therefore, examining whether or not farmers are satisfied with the current situation is an important key to predict the future of peasant farming.

Of the total sample, 39 farmers or 71% answered that they were considerably satisfied with the current farming and management, even though they desired a higher yield and

17) These reasons refer only to the most recent demonstration. The demonstration seems to have been conducted about 10 times before now.

income. The several reasons for this satisfaction are shown in Table 11. The predominating reason is double-cropping itself. This may simply mean that they are now able to be self-sufficient in their home consumption of rice through roughly doubling the annual yield. Thirty farmers, more than one half of the total, are satisfied with this reason. The next reason is the existence of the F.A., which was given by 10 farmers. Obviously, none of the non-members of the association stated this reason, instead, all of them gave as a reason double-cropping.

It should be noted that 35 farmers or 63.6% of the total are passively satisfied with the current way of farming or management which has been improved by the Government's reforming infrastructure projects, e.g., double-cropping and the Farmers' Association, and they initially plan little further progress themselves.

Table 11 Reasons for satisfaction with the current farm management

	F.A. members	F. A. non-members	total
a) double-cropping	17(54.8)	8(100.0)	25(64.1)
b) existence of the F.A.	5(16.1)		5(12.8)
c) a) & b)	5(16.1)		5(12.8)
d) others	4(12.9)		4(10.3)
total	31(100.0%)	8(100.0%)	39(100.0%)

5. Information on improvement of farming and sources of information

Double-cropping is the most dramatic change which has taken place in the infrastructure of paddy farming, and the establishment of the Farmers' Association is now promoting rapid modernization of peasant agriculture. However, the leader in such modernization must be the farmer. Farmers' opinions on the present situation were discussed in the preceding subsection. To transform the farming system at the farm level, information on improved technology or method of improving technology is crucial. As mentioned clearly by Schultz,¹⁸⁾ and his successors¹⁹⁾ have confirmed it, re-allocation of traditional resources can result in little improvement of agriculture. To introduce new resources and technology is the problem of agricultural development. This introduction is, of course, based on information which is available to farmers through various channels. Thus, it is necessary to examine the quantity and sources of information available to farmers. In other words, I will discuss observation, with particular reference to information of improved techniques and its sources, one of the five functions of the managerial processes which have been developed in past farm management studies.²⁰⁾ Under the given conditions, such information is mainly provided by the

18) Schultz, T. W., *Transforming Traditional Agriculture*, Yale University Press, 1964.

19) See, for example, W. D. Hopper, "Allocation Efficiency in a Traditional Indian Agriculture," *Journal of Farm Economics*, Vol. 47, No. 3, 1965.

20) See, for example, G. L. Johnson, A. N. Halter, H. R. Jensen and D. W. Thomas, *A Study of Managerial Processes of Midwestern Farmers*, Iowa State University Press, 1961.

Table 12 Method expected to improve farm techniques.

	F.A. members	F.A. non-members	total
a) traditional way but work harder	0	1 (6.7)	1 (1.8)
b) follow the recommendation	11(27.5)	1 (6.7)	12(21.8)
c) follow the progressive farmers	2 (5.0)	8(53.3)	10(18.2)
d) b)+c)	27(67.5)	5(33.3)	32(58.2)
	40(100.0%)	15(100.0%)	55(100.0%)

Department of Agriculture, therefore, this is particularly to be discussed. Also, how seriously the farmers seek information should be considered, in order to find out the potentiality to promote further modernization of peasant agriculture.

The farmers were first asked how they expected to improve system and techniques. The result is shown in Table 12. Thirty-two farmers, or 58.2% of the total, stated that they would follow the recommendation of the Department of Agriculture as well as the progressive farmers in the community, and 12 farmers or 21.8% and 10 farmers or 18.2% of the total, the recommendation only, and the progressive farmers only, respectively. Of the 40 who are members of the F.A., 11 farmers or 27.5% answered that they would follow the recommendation only, and 27 farmers or 67.5%, both the recommendation and the progressive farmers. Only 5% of the total members does not expect anything at all of the recommendation. On the other hand, of the 15 who are not members of the association, 8 farmers or 53.3% stated that they would follow the progressive farmers only, and only 6 farmers were willing to follow the recommendation. Thus, we observe that there is a rather clear difference between the F.A. members and the non-members concerning the expected methods to improve their farming techniques. The above difference may be due to the fact that the recommendation is broadcasted mainly through the F.A. Only one of the total 55 samples wishes to increase his yield and income by working harder and harder in the traditional way. To be sure, the member farmers of the association tend to improve rather positively their farming system according to the recommendation, whereas the non-member farmers tend to follow the majority of farmers in the community. What will be the result of this tendency is still unknown. Whether or not this will be a kinetic point of the two-pole diversification is yet to be studied thoroughly and it is only within the next

Table 13 Sources of information of improving farming

	F.A. members	F.A. non-members	total
recommendation	35	6	41
progressive farmers	25	11	36
booklets	1	1	2
agri. programme on radio	35	9	44
actual no. of farmers interviewed	40	15	55

several years the result will emerge.

Secondly, they were asked what were the sources of information to which they had access. As shown in Table 13, the most important source is the recommendation of the Department of Agriculture, which is disseminated by radio, film and extension workers. Only 2 farmers refer to actual publications, and this must be closely related to the high rate of illiteracy. Radio is supposed to be the most common source of information in the rural areas. However, only 21 farmers or 38% of the total own a radio. Those who do not own one, listen at the neighbour's or friends' houses. It is clear that non-members of the F.A. have little expectation of such a recommendation.

As is clear from Tables 12 and 13, the farmers generally depend on the Department of Agriculture in collecting information. Also, they influence each other in a small community. Considering the present situation of farmers and the rural community as a whole, the above sources and methods of collecting information are reasonable.

We have come to the point where we must examine how seriously the farmers desire information and how serious are their efforts to improve the system and techniques of their farming. In general, the farmers are unwilling to visit the office of the association, only one mile away from the community, unless for some particular reason, e.g. purchasing fertilizer, or for a meeting. It may be assumed, therefore, that the farmers have only a few opportunities during one cropping season to meet any extension worker who cannot come into the community because of lack of time. Only two farmers listen to the agricultural programme on radio every night. Thirty or 54.5% of the total do so only once a week, and 11 or 20% do not listen at all. Thus, it can be assumed that the recommendation, which is very important and sometimes the only information, has not been sufficiently broadcasted in the community.

Accordingly, it is necessary to discover the farmers' degree of knowledge concerning the recommendation, given this background of passivity. This examination concerns only their knowledge, not whether or not they actually put it into practice.²¹⁾ As shown in Table 14, seventeen farmers or 30.9% of the total know nothing of the exact contents of the recommendation. Of the total sample, only 22 farmers or 40% know more than 50% of the exact contents, and nobody knows them perfectly. As a result of this discovery, it is clear that there is a fundamental deficiency of knowledge among the farmers. Cultivation and management techniques should be improved systematically in order to aim at a sufficient result. From the view point of such a result, the farmers who know only part of the recommendation are not very different from those who know almost nothing and simply follow the majority.

As reasons for insufficient collection of information, we can consider as follows: 1) Methods of collection are limited because some of the farmers are illiterate; 2) thirty-four farmers or 61.8% are unable to purchase a radio because of poverty; 3) extension workers are unable to circulate in the community because of lack of both time and staff; and 4) many

21) The recommendation was divided into 16 items in each of which the farmers were asked if they knew or not. The result was converted into a form of percentage presented in Table 14.

Table 14 Farmers' knowledge about the recommendation

degree of knowledge	F.A. members	F.A. non-members	total
100%	0	0	0
75-99	8	0	8(14.5)
50-74	9	5	14(25.5)
25-49	10	0	10(18.2)
1-24	6	0	6(10.9)
0	7	10	17(30.9)
total	40	15	55(100.0%)

farmers may be satisfied only with double-cropping which offered a considerable increase in total yield.

From the above analysis, we may conclude that although the farmers desire further increase in yield and income, there exist some prohibiting factors such as lack of sources of information, limited method of collecting information on the farmers' side, and the problem of their financial background. However, over and above these factors, we must concede that the most vital element, that of the farmers' consciousness of the necessity to improve the system after the completion of double-cropping is not yet developed.

IV Conclusion

Malay peasants in this community are considerably satisfied with the present farm management system, centered on double-cropping which was started about 10 years ago, as well as the Farmers' association, first established in 1968. There is a difference between the member farmers and non-members of the association, concerning their attitude towards the modernization programme. Although the members are rather more positive than non-members in their attitude, it is not yet satisfactory. To break down this passive satisfaction and increase the quality of the labour force is one of the most important means of promoting modernization of peasant rice culture. The extension activities need to be reinforced further, so that farmers can absorb improved technology. It can be considered that although farmers are not interested to transform the system of farming and management by themselves, they may gradually accept extension services, if given.

Although agricultural modernization should be approached by institutional and technological means as well, the most urgent priority is to increase farmers' consciousness to transform their farming system.

It might be a dangerous attempt to discuss human resources alone, which should, generally speaking, be considered in relation to many other factors. However, I feel that such an attempt is necessary in view of the predominantly economic bias of most current research on the subject of agricultural modernization.